REMARKS

Claims 1-20, 22-28 and 54 are pending in the instant application. Claims 1-20, 22-28 and 54 have been rejected. Claims 1-20, 22-28 and 54 have been canceled. Subject matter of these claims is represented in new claims 56 through 98. No new matter is added by these claims. Reconsideration is respectfully requested in light of these amendments and the following remarks.

I. Sequence Disclosures

The Examiner suggests that the instant application fails to comply with the requirements of 37 C.F.R. 1.821 through 1.825 because claims 23-24 and 26-27 recite specific portions of an amino acid sequence by numbered residues, but do not include unique sequence identifiers. Accordingly, in an earnest effort to advance the prosecution of this case, Applicants have amended the sequence listing to include specific fragments taught in the instant claims and to clarify rat versus corresponding human sequence fragments. Applicants have also amended the specification to include the sequence identifiers where appropriate. Support for these amendments is provided in the instant specification as filed wherein the full length sequences and amino acid residues of all of the fragments are taught. Thus no new matter is added by these amendments and their entry is

respectfully requested.

II. Rejection of Claims 1-7, 15-20, 28 and 54 under 35 U.S.C. 112, first paragraph - Lack of Enablement

Claims 1-7, 15-20, 28 and 54 have been rejected under 35 U.S.C. 112, first paragraph. The Examiner has acknowledged the specification to be enabling for methods employing HPLC and mass spectrography or using a compound which specifically binds to the peptide fragment or myofilament protein or covalent or non-covalent complex formation comprising a peptide fragment or a myofilament protein. However, the Examiner suggests that the specification does not reasonably provide enablement for other methods not employing HPLC and mass spectrography or that lack a compound that specifically binds to the peptide fragment etc. The Examiner suggests that the specification lacks any working or even prophetic examples that do not employ HPLC or a compound which specifically binds. Further, the Examiner suggests that his review of the art revealed no other available methods for detection.

Applicants respectfully traverse this rejection.

At the outset, Applicants respectfully disagree with the Examiner's characterization of the teachings of the instant specification. Contrary to the Examiner's suggestion, various

methods for detecting peptide fragments are set forth in the specification beginning at page 13, line 27 and extending to page 14, line 19. This section of the specification sets forth additional methods to HPLC or a compound which specifically binds for peptide fragment detection.

Further, MPEP § 2164.08 and the holding of the courts are quite clear; claims are not to be rejected as broader than the enabling disclosure under 35 U.S.C. § 112 for noninclusion of limitations dealing with factors which must be presumed to be within the level of ordinary skill in the art; the claims need not recite such factors where one of ordinary skill in the art to whom the specification and claims are directed would consider them obvious. *In re Skrivan*, 427 F.2d 801,806, 166 USPQ 85,88 (CCPA 1970). Clearly the novelty of the present invention lies in the finding that specified myofilament peptide fragments and complexes thereof are indicators of cardiac and skeletal muscle damage. General methods by which peptide fragments can be detected are well known and therefore are obvious factors which need not be recited in the claims.

Also made clear in MPEP § 2164.08 and by the courts is that one does look to the claims but to the specification to find out how to practice the claimed invention. *W.L. Gore & Assoc., Inc.*

v. Garlock, Inc. 721 F.2d 1540, 1558, 220 USPQ 303, 316-17 (Fed. Cir. 1983); *In re Johnson*, 558 F.2d 1008, 1017, 194 USPQ 187, 195 (CCPA 1977). Suggestions by the Examiner to include the specific methods by which a peptide fragment may be detected are clearly related to practice of the claimed invention and thus need not be specifically outlined in the claims since they are clearly taught in the specification.

Finally, the court in *In re Goffe* made clear in their holding that

> "[t]o demand that the first to disclose shall limit his claims to what he has found will work or to material which meet the guidelines specification for "preferred" materials in a process such as the one herein involved would not serve the constitutional purpose of promoting progress in the useful arts." (542 F.2d 564, 567; 191 USPQ 429, 431 (CCPA 1976); MPEP 2164.08)

Thus, the Examiner's suggestion that to meet the enablement requirements the claims must be limited to specific methods for detection of peptide fragments, both exemplified by the instant specification and well known to those skilled in the art, is clearly improper in light of teachings of the MPEP, holdings of multiple courts and the constitutional purpose for the patent statute.

Withdrawal of this rejection under 35 U.S.C. § 112, first

paragraph is therefore respectfully requested.

III. Rejection of Claims 1-7, 15-20, 28 and 54 under 35 U.S.C. 112, first paragraph - Lack of Written Description

Claims 1-7, 15-20, 28 and 54 have been rejected under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement. Specifically, the Examiner suggests that the specification is silent with regard to methods that do not employ HPLC or compounds that specifically bind.

Applicants respectfully traverse this rejection.

At the outset, Applicants respectfully disagree with the Examiner's characterization of the teachings of the instant specification being silent with regard to methods for detection that do not employ HPLC or compounds that specifically bind. The Examiner is respectfully directed to page 13, line 27, through page 14, line 19 wherein various methods for peptide fragment detection, in addition to those suggested by the Examiner to be taught, are set forth. Thus, the Examiner's basis as to why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims is flawed as it is based upon a mischaracterization of the teachings of the specification.

Further, for an original claim, inadequate written

description should only be raised if the claims require an essential or critical feature which is not adequately described in the specification and which is not conventional in the art or known to one of ordinary skill in the art. See MPEP §2163. The specific method by which a peptide fragment or covalent or non-covalent complex is detected is not a critical or essential feature to the instant claimed invention. One of skill in the art, upon reading the disclosure, would understand that it is unimportant how the peptide fragments or covalent or non-covalent complexes were detected, as long as they were detected. Thus, the fact situation herein is similar to that of *Rasmussen*, 650 F.2d at 1214, 211 USPQ at 326-326 wherein disclosure of a single method of adhering the layers was sufficient to support a generic claim to "adheringly applied" because one skilled in the art reading the specification would understand that it is unimportant how the layers are adhered, so long as they are adhered. See MPEP § 2163 (ii) at page 2100-168. In the instant case, however, several examples of methodologies for detection are set forth thus providing even further support for a generic claim to detecting or measuring a peptide fragment or covalent or non-covalent complex that was set forth in *Rasmussen*.

Finally, as already discussed in detail in Section II,

supra, any requirement upon the first to disclose to specifically limit their claims to only those process steps found to work does not serve the constitutional purpose of promoting progress in the useful arts and thus is improper. See *In re Goffe*, 542 F.2d 564, 567; 191 USPQ 429, 431 (CCPA 1976).

Withdrawal of this rejection under 35 U.S.C. §112, first paragraph is therefore respectfully requested.

IV. Rejection of Claims 1-7, 15-20, 23-24, 26-28 and 54 under 35 U.S.C. 112, second paragraph

Claims 1-7, 15-20, 28 and 54 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner suggests that unlike claim 8, the rejected claims recite "a method of assessing muscle damage in a subject comprising evaluating" without recitation of the specific process steps involved in the evaluating. The Examiner suggests that without the recitation of specific process steps involved in evaluating, the metes and bounds of the claims are indefinite.

Accordingly, in an earnest effort to advance the prosecution of this case, newly presented claims do not include the term

evaluating but rather are drawn to detecting the presence or absence or measuring the amount of a peptide fragment or covalent or non-covalent complex. Support for this amendment is provided throughout the specification. See for example, page 2, line 20 through page 3, line 10 and page 10, lines 6-18.

Claims 23-24 and 26-27 have also been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for reciting specific amino acid sequences by specific amino acid numbers without reciting a unique SEQ ID NO.

Accordingly, in an earnest effort to advance the prosecution of this case, all newly presented claims drawn to specific amino acid numbers also include a unique sequence identifier. As discussed in Section I, *supra*, Applicants are also submitting herewith an amended sequence listing inclusive of these sequences. All newly added sequences and sequence identifiers are clearly supported by teachings of the full length sequences presented in the original application upon filing. Thus, no new matter is added by these amendments.

Withdrawal of these rejections is respectfully requested in light of the amendments to the claims.

V. Rejection of Claims 1-13, 15-20 and 28 under 35 U.S.C. 102(b)

Claims 1-13, 15-20 and 28 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Lofberg et al. The Examiner suggests that Lofberg discloses use of various antibodies and detectable labels and markers to detect two different fragments of myosin heavy-chain, troponin I and troponin T for the purpose of assaying acute muscle damage, irreversible cardiac and skeletal muscle damage and reversible skeletal muscle damage from biological samples such as serum. The Examiner suggests that while the troponin proteins measured by Lofberg may not be true fragments as the myosin heavy chain fragments, they meet the claim limitations because the claims use open language of comprising a peptide fragment and because the specification broadly defines complex formation comprising a peptide fragment of a myofilament protein to include a peptide bound to an antibody.

Accordingly, in an earnest effort to advance the prosecution of this case and to clearly distinguish the present invention from teachings such as Lofberg, Applicants have canceled claims 1-13, 15-20 and 28, and represented the subject matter in new claims 56 through 98. New claims 56 through 98 do not use the open language of comprising with respect to the peptide fragments and covalent or non-covalent complexes detected or measured, but

rather specify what these consist of. Support for claims 56 through 98 is provided in the claims as originally submitted and in teachings regarding the detected peptide fragments and covalent and noncovalent complexes set forth throughout the specification and in particular in the figures and teachings at page 10, line 21 through page 11, line 15, page 12, lines 4-24, and page 22, line 24, through page 25, line 7.

Since Lofberg does not teach detection of the peptide fragments or covalent or non-covalent complexes as now claimed, this reference cannot anticipate the instant claimed invention.

Withdrawal of this rejection under 35 U.S.C. § 102(b) is therefore respectfully requested.

VI. Rejection of Claims 1-13, 15-20, 22, 28 and 54 under 35 U.S.C. 102(b)

Claims 1-13, 15-20, 22, 28 and 54 have been rejected under 35 U.S.C. 102(b) as being anticipated by Westfall et al. The Examiner suggests that Westfall discloses use of various antibodies and detectable markers to detect fragments from both troponin I and troponin T for the purpose of assaying cardiac muscle damage from ischemia from biological samples such as a component of cardiac muscle tissue.

Accordingly, in an earnest effort to advance the prosecution

of this case and to clearly distinguish the present invention from teachings such as Westfall, Applicants have canceled claims 1-13, 15-20, 22, 28 and 54, and represented the subject matter in new claims 56 through 98. Support for claims 56 through 98 is provided in the claims as originally submitted and in teachings regarding the detected peptide fragments and covalent and noncovalent complexes set forth throughout the specification and in particular in the figures and teachings at page 10, line 21 through page 11, line 15, page 12, lines 4-24, and page 22, line 24, through page 25, line 7. These new claims specify the particular peptide fragments and/or complexes which are detected to assess muscle damage. None of these peptide fragments and/or complexes are taught to be detected by Westfall.

Thus, since Westfall does not teach detection of the peptide fragments or covalent or non-covalent complexes as now claimed, this reference cannot anticipate the instant claimed invention.

Withdrawal of this rejection under 35 U.S.C. § 102(b) is therefore respectfully requested.

VII. Rejection of Claims 1-4, 6-20, 22-24, 28 and 54 under 35 U.S.C. 102(b)

Claims 1-4, 6-20, 22-24, 28 and 54 have been rejected under 35 U.S.C. 102(b) as being anticipated by Wicks et al. The

Examiner suggests that Wicks discloses the use of antibodies and detectable labels and markers to detect troponin I (and specific fragments, page 5 and claims 12-13, 18, 26-27, 32-34 and 36) and troponin C in a complex in sandwich assays having immobilized solid phases for the purpose of assaying irreversible cardiac damage from biological samples such as blood.

Arguments presented by Applicants to distinguish Wicks in the last response were not found convincing as the Examiner suggests that Wicks meets all the limitations of the claims when he teaches methods to detect troponin I and troponin C in a complex because any complex formation, covalent or non-covalent is encompassed by the instant claims as defined by the phrase "myofilament protein modification product" in the instant specification. Further, the Examiner suggests that Wicks is drawn to method of detecting muscle (cardiac) damage at pages 1-2, especially page 2, lines 11-16. In addition, the Examiner suggest that Wicks teaches detecting troponin I and that his methods can detect different fragments of troponin I, meeting the claim limitations of two different myofilament protein modification products because the broad phrase encompasses two different fragments as defined by the instant specification. The Examiner suggests that the methods of Wicks using antibodies

raised against troponin I fragments would inherently detect the fragments themselves and that the use of antibodies and processes of Wicks inherently meet all the claim limitations, even if the intent is not to detect cardiac troponin I fragments per se.

Thus, in an earnest effort to advance the prosecution of this case, Applicants have canceled claims 1-4, 6-20, 22-24, 28 and 54, representing the subject matter in new claims 56 through 98. Support for claims 56 through 98 is provided in the claims as originally submitted and in teachings regarding the detected peptide fragments and covalent and noncovalent complexes set forth throughout the specification and in particular in the figures and teachings at page 10, line 21 through page 11, line 15, page 12, lines 4-24, and page 22, line 24, through page 25, line 7. Claims 56-79 are drawn methods for assessing cardiac damage by detection of specific peptide fragments and/or covalent or non-covalent complexes consisting of specific peptide fragments, none of which are taught by Wicks et al. Further, recognition that the presence or absence of these specific peptide fragments or complexes thereof are useful in assessing cardiac muscle damage in no way follows by scientific reasoning from the teachings of Wicks et al. and thus cannot be inherent.

Thus, since Wicks et al. does not teach detection of the

peptide fragments or covalent or non-covalent complexes as now claimed, this reference cannot anticipate the instant claimed invention.

Withdrawal of this rejection under 35 U.S.C. § 102(b) is therefore respectfully requested.

VIII. Rejection of Claims 1-2, 8-20, 25-28 and 54 under 35 U.S.C. 102(b)

Claims 1-2, 8-20, 25-28 and 54 have been rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al. (WO 96/10078). The Examiner suggests that Takahashi discloses the use of antibodies and detectable labels and markers to detect myosin light chain 1 (MLC-1) in a complex in sandwich assays having immobilized solid phases (pages 10 and 12) for the purpose of assaying cardiac damage from biological samples such as blood (pages 2-5).

Arguments presented by Applicants were not found persuasive because the Examiner suggests that Takahashi meets the claim limitations because the claims use open language of comprising a peptide fragment and because the specification broadly defines complex formation comprising a peptide fragment of a myofilament protein to include a peptide bound to an antibody. Thus, the Examiner suggests that the claims encompass non-fragment myosin

light chain protein as taught by Takahashi which "comprises" a peptide fragment of a myosin light chain protein and a complex of myosin light chain protein bound to an antibody.

Accordingly, in an earnest effort to advance the prosecution of this case and to clearly distinguish the present invention from teachings such as Takahashi, Applicants have canceled claims 1-2, 8-20, 25-28 and 54, and represented the subject matter in new claims 56 through 98. New claims 56 through 98 do not use the open language of comprising with respect to the peptide fragments or covalent or non-covalent complexes detected but rather specify what they consist of. Support for claims 56 through 98 is provided in the claims as originally submitted and in teachings regarding the detected peptide fragments and covalent and noncovalent complexes set forth throughout the specification and in particular in the figures and teachings at page 10, line 21 through page 11, line 15, page 12, lines 4-24, and page 22, line 24, through page 25, line 7.

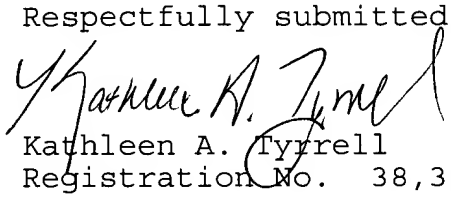
Since Takahashi does not teach detection of the peptide fragments or covalent or non-covalent complexes as now claimed, this reference cannot anticipate the instant claimed invention.

Withdrawal of this rejection under 35 U.S.C. § 102(b) is therefore respectfully requested.

IX. Conclusion

Applicants believe that the foregoing comprises a full and complete response to the Office Action of record. Accordingly, favorable reconsideration and subsequent allowance of the pending claims is earnestly solicited.

Respectfully submitted,



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